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(54) Title: NUCLEIC ACID MEDIATED ELECTRON TRANSFER

(57) Abstract

The present invention provides for the selective covalent modification of nucleic acids with redox active moieties such as transition metal complexes. Electron donor and electron acceptor moieties are covalently bound to the ribose-phosphate backbone of a nucleic acid at predetermined positions. The resulting complexes represent a series of new derivatives that are bimolecular templates capable of transferring electrons over very large distances at extremely fast rates. These complexes possess unique structural features which enable the use of an entirely new class of bioconductors and photoactive probes.

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INTERNATIONAL SEARCH REPORT

Intern nal Application No
PCT/US 94/13893

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 C07H21/00 G01N33/50 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 C07H G01N C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO,A,93 10267 (IGEN INC) 27 May 1993 see the whole document ---	19,20
X	DATABASE WPI Derwent Publications Ltd., London, GB; AN 88-320199 & JP,A,63 238 166 (MITSUBISHI DENKI KK) , 4 October 1988 see abstract ---	1
X,Y	SCIENCE, vol. 262, 1993 pages 1025-9, C. J. MURPHY ET AL. 'Long-Range Photoinduced Electron Transfer Through a DNA Helix' see the whole document --- -/--	5-8,19, 20

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
5 July 1995	-7. 07. 95

Name and mailing address of the ISA	Authorized officer
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,Y	PHOTOCHEM. CONVERS. STORAGE SOL. ENERGY, PROC. INT CONF., 8TH 1990, pages 121-39, N. TURRO ET AL. 'Photoelectron Transfer Between Molecules Adsorbed in Restricted Spaces' see page 133 - page 135	5-8,19, 20

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INTERNATIONAL SEARCH REPORT

...formation on patent family members

Interr ...al Application No
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		AU-A-	3141293	15-06-93
		EP-A-	0567635	03-11-93
		JP-T-	6507316	25-08-94
		ZA-A-	9208839	13-05-93